probably more, have the black legs of *A. bipunctata* while the rest have the pale variety of *C. 10-punctata*.

Can anyone explain this, except as a result of the crossing between the two species? My work on this group has brought me to two conclusions, viz:

Either the two present species *A. bipunctata* and *C. 10-punctata* have originally been one and gradually become two via an intermediate form which might be *C. biabilis*, *or* if two species originally, these are gradually merging into one represented by *C. biabilis*. So far as my outdoor work in Cumberland is concerned, during the last 12 years of observation I am inclined to the latter of these alternatives. But these changes of nature, these evolutions, are so slow that neither Prof. Capra, nor Mr. Leman, nor myself will be alive to say "I told you so," by the time the change is completed.

As another example of—shall I say 'probable instability' among our *Coccinellidae* I might mention the case of a form to which Mr. Dollman called attention in the *Ent. Rec.* 1912. plate 11, a form of *Mysia oblongoguttata*, which he names var. *nigroguttata*. On coming across his note I examined my series of this insect and found I had the same form bred from an accidental mating in my cages between *M. oblongoguttata* and *A. ocellata*. Last summer I tried a mating to verify or disprove my former note, and, though the resultant imagines were not exactly var. *nigroguttata* they had the same characteristic markings; mating two of these hybrids proved abortive; mating a ♂ hybrid with ♀ *A. oblongoguttata* or ♀ *A. ocellata* produced fertile ova, which unfortunately did not come through the larval stages succesfully.

As this var. *nigroguttata* has been recorded from more than one locality since the time of its recording and naming, and as both *M. oblongoguttata* and *A. ocellata* are found in all those localities, we have here probably another example of the same happening as in the case of *C. biabilis*.

The Butterflies of Jebel Qineisa, Lebanon.

By P. P. GRAVES, F.E.S., and R. ELDON ELLISON.

The authors of this paper have paid several visits on various occasions to this mountain which is situated in the Central Lebanon immediately North of the Beirut-Damascus Railway. There are two passes traversed by high roads, reaching a maximum altitude of over 5,000 feet on each side of the mountain, the Azuniyah Pass to the North and the Khan Murad Pass to the South of it. The rocks are mainly calcareous. The surface where not rocky is occupied by mountain meadows and the thin stony cornfields which are a monument to Lebanese optimism. There were once some larches in the Northern Pass but they have vanished, presumably owing to the war, and there are now very few trees in the area. The most recent French survey gives the summit of Jebel Qineisa an altitude of 2091 metres (about 6850 ft.).

The senior author visited the mountain twice in May, 1905, and early in August, 1907. He also received some specimens taken by Signor F. Cremona above Hammana village on the Western slopes of the mountain. Mrs. Nicholl and the late Colonel H. J. Elwes spent

May 19th and 20th, 1900, on Qineisa, on the Eastern side. The junior author visited it on several occasions in June, July and August in 1927, and in the current year. In the following list, the months are given in Roman numerals; b.m.e. preceding them signify beginning —1st-10th, middle—11th-20th, and end—21st-end respectively.

(C) = taken by Cremona. (E) = taken by Ellison. (G) = taken by Graves. (N) = taken by Mrs. Nicholl.

Papilio machaon, L , ssp. *asiaticus*, Men. Congregates on hilltops, scarce elsewhere (E).

Iphiclides podalirius, L., ssp. *virgatus*, Butler; just reaches Hammana and Ain Sofar on the West slope and seems to have its vertical limit there at about 4,000 feet (G).

Thais cerisyi, God., ssp. *deyrollei*, Obthr. : m.V.1905 (G)

Parnassius mnemosyne, L., ssp. *libanotica*, Bryk. : Above Hammana VI. (C). High on Jebel Qineisa 19th, 20th, V.1900 (N).

Aporia crataegi, L., ssp. *meridionalis*, Vrty. : m.V. (G). b.VI. very worn (E).

Pieris rapae, L., trans. ad *leucosoma*, Schaw. : worn b.V. (G). Not common in the summer (E).

P. daplidice, L. : Very general (E). Out at over 4,000 ft. b.V. (G).

Euchloë charlonia, Donz., ssp. *penia*, Frr. : In a col on the North side and near Dahr el Baidar on the South side locally, e.V.-b.VI. (E).

Gonepteryx cleopatra, L., ssp. *taurica*, Stgr. Not common (E).

G. rhamni, L., ssp. ? or *G. farinosa*, Z. : a ♂ seen b.VIII.1907 (G).

Colias crocea, Fourc. Very common.

Argynnis niobe, L., ssp. *philistra*, Seitz. : fairly common on the North side in damp places where bracken grows.

Issoria lathonia, L. : not plentiful on North and South slopes b.m. VI. (E).

Melitaea didyma, O., ssp. ? rare m.V. (G) : uncommon on West slope (E).

M. trivia, Schiff., ssp. *syriaca*, Rbl. Scarce (E).

M. cinxia, L., ssp. ? : at 4500 ft. very small and pale with antemarginal row of spots on hindwings almost or altogether obliterated, 19th, 20th V.1900 (N).

Polygonia egea, Cr. : Widespread but not common (G.E.).

Pyrameis cardui, L. : Everywhere.

P. atalanta, L. : One b.VIII.1907 (G.).

Limenitis rivularis, Scop. : One, half way up the South slope, an unusual capture on a treeless mountain.

Melanargia titea, Klug, ssp. *palaestinensis*, Stgr. : In cornfields nearly to summit, lasts into VIII. (E.)

Hipparchia persephone, Hb. : (=*anthe*, O.) less common than at lower levels (E.). Lasts all through the summer from b.VI. (G).

H. telephassa, Hb. : like the preceding (E).

H. pelopea, Klug : abundant, VI.-VIII. (E).

Satyrus fatua ssp. *sichaea*, Led., one or two seen b.VIII.1907 (G).

S. cordula, F. : ssp. ? Seen several times VII., VIII. (E).

Pararge maera, L., ssp. *orientalis*, Stgr. : fairly common and widespread (E).

P. megera, L. : less common (E).

Epinephele telmessia, Z. : once only in June (E).

Hyponephele lupinus, Costa., ssp. ? *intermedius*, Stgr. : not uncommon but singly (E).

H. lycaon, Rott., ssp. *libanoticus*, Stgr.: a number on one stony hilltop b.VIII.1907 (G).

Coenonympha pamphilus ssp. *thyrsides*, Ist.gen. m.V.1905 singly (G). On South side chiefly in valley b.VI. (E).

Strymon myrtale, Klug: abundant b.m.VI. on col on North side and near the top (E).

Lycaena thetis, Klug: scarce in gullies on South side, b.VIII. (E).

L. thersamon, Esp.: 19th, 20th, V.1900 (N).

L. asabinus, H.S.: on East side of the mountain 19th, 20th, V.1900 (N).

L. phlaeas, L.: here and there (E).

L. dorilis, Hfn.: one from above Hammana e.V.1907 (C).

Cigaritis acamas, Klug: once half way up South side (E), b.VIII.

Lampides boeticus, L.: occasionally up to summit (E).

G. cyllarus, Rott., ssp. *aeruginosa*, Stgr.: one very worn above Ain Sofar e.V.1905.

Plebeius sephyrus, Friv., ssp. *nicholli*, Elwes., abundant near the top VI-VII., less abundant lower down (E).

P. loewii, Z., ssp. ?: common in cornfields high up on the mountain m.VI-b.VIII and once taken at 5,000 ft. on the South side (E).

P. medon, Esp., ssp. *cramera*, Esch.: here and there but not common (E.)

Polyommatus anteros, Frr., ssp. *crassipuncta*, Chr.: Col on North side and at the top, not common (E).

P. candalus, H.S., ssp. *isauricoides*, Graves: once only at c.6,000 ft. m.VI. (E).

P. icarus, Rott., ssp. *zellericus*, Vrty: Mercifully less common than lower down.

P. amandus, Schn., ssp.? On the Southern Pass e.V.1907 (G).

P. meleager, Esp., ssp. *ignoratus*, Stgr.: fairly common in cornfields near top VII.-b.VIII. (E).

P. coridon, Poda, ssp. *syriacus*, Tutt: in cornfields with *meleager* and not rare in the col on the North side VI.-VIII., "apparently in two broods, but they seem to overlap" (E).

P. admetus, Esp., ssp. *ripartii*, Frr.: not rare with the preceding ssp. VII.-VIII. (E). Rare in the pass lower down on the south side (E).

P. semiargus, L., ssp. *antiochena*, Led., *helena*: on East side of the mountain 19 and 20.V.1900 (N).

Hesperia serratulae, Rbr., ssp. *alveoides*, Stdgr.: near summit, not very common b.VII. (E).

Adopaea lineola, O.: fairly plentiful here and there on South side VI. (E).

A. flava, Brunn., ssp. *syriaca*, Tutt: on South side generally lower down than *lineola* (E).

A. sylvanus, L.: One from above Hammana b.VI.1905 (C).

Urbicola comma, L., ssp. *pallida*, Stdgr.: quite common and widespread e.VII.-VIII. (E. & G.).

In addition to these spp., *Pieris ergane*, HG. and *Polygonia c-album*, L., were doubtfully identified on the summit.

The above list covers the high ground from about 4,200 feet to the summit, and includes 60 species certainly identified.

Mr. Ellison adds the following data which will interest collectors in Syria.

Turania (*Scolitantides*) *rikrama*, Moore, ssp. *clara*, Stgr. (=*baton*, ssp. *clara*, Stgr.): occasionally in VII. on the ridge from Aleih to Suq-el-Gharb (Lebanon) and beyond. One III., 1927, at the Dog River, Beirut.

Chilades galba, Lederer: near Antelias, North of Beirut near coast, not common, e.VI. (This is the first Beirut record since Lederer's description in 1855.)

Azanus jesous, Guer., ssp. *gamra*, Led., *Virachola livia*, Klug, *Gegenes lefebvrei*, Rmbr., all abundant at Nahr Mut between Dora and Antelias in the Beirut Delta VI.-VII., 1928.

Baoris zelleri, Led.: near Dora e.VIII.

Sloperia proto, Esp., one e.VIII: on hill between Aleih and Suq-el-Gharb.

Some Remarks on the Rearing of Callophrys avis, Chap.

By BRIGADIER GENERAL B. H. COOKE, C.M.G., C.B.E., D.S.O.

I gave a short account of my efforts to find *Callophrys avis* on the Riviera coast in Vol. LX. of the *Entomologist* (p. 104). This last spring (1928) I was again in that district and renewed my search. As is well known, *Arbutus unedo* grows abundantly along the whole coast between Cannes and Hyères, and I spent a considerable time visiting various localities between those two places in search of this very elusive insect. However I only found it in one spot, *i.e.*, the neighbourhood of Cavalière.

Between St. Aygulf and Ste. Maxime the conditions are almost identical with those at Cavalière, and the hill-sides are covered with the Arbutus, yet, although *C. rubi* was everywhere abundant, not a single specimen of *C. avis* was to be seen.

On March 27th, a lovely warm spring day, I visited Cavalière, and among a number of *C. rubi* took one male *C. avis*. I found, however, that owing to recent heath fires the "maquis," or undergrowth, was being shaved off and burnt, a considerable amount of Arbutus being burnt at the same time, no doubt with disastrous results to insect life. I stayed at Cavalière from April 3rd to 6th, and during three strenuous days of searching took two fresh male *C. avis* and one fresh female. The female was taken on April 5th, and I kept her alive.

I have noticed that when not sitting on the Arbutus bushes *C. avis* is very fond of feeding on the flowers of the Mediterranean lavender, I therefore collected some of the flowers, sprinkled some drops of sugared water on them, and placed them together with a sprig of Arbutus, in a flower vase, enclosed the whole in a large gauze cage, and placed the female inside.

April 6th, 7th and 8th were dull and wet, but the 9th was warm and sunny, and the gauze cage having been placed in the sun she began sucking at the sugar on the flowers. At about 1·30 p.m. she hopped on to the sprig of Arbutus and began to lay about two eggs at a time, flying off on to the gauze during the intervals. The eggs were mostly laid on a bud at the tip of the sprig, a few on the stem, one on a small leaf, and one in the angle formed by a leaf with the stem of the sprig. Ten eggs were laid that day. On April 10th, 7 or 8 more